

REMARKS

Applicant respectfully requests consideration of the subject application as amended herein. This Amendment is submitted in response to the Office Action mailed on February 11, 2004. Claims 1-41 and 60-83 are withdrawn. No new matter has been added.

35 U.S.C. § 103(a)

The Examiner rejected claims 42-45, 47-52 and 54-59 under 35 U.S.C. § 103(a), as being unpatentable over Cheung, et al., (U.S. Patent No. 6,262,594, hereinafter "Cheung"). Claims 46 and 53 are rejected under 35 U.S.C. § 103(a), as being unpatentable over Cheung, et al., as applied to claims 45 and 52 above, and further in view of Smith, et al., (U.S. Patent No. 5,824,186, hereinafter "Smith"). As discussed below, the pending claims are patentable over the above references.

With regard to claims 42-44, Applicant respectfully disagrees with the Examiner's rejection. Applicant submits that Cheung did not disclose, teach, or suggest the elements of claim 42. In particular, claim 42 requires "a plurality of functionally symmetric interface pads coupling said IC to a receptor site of an electronic device, said plurality of interface pads being arranged in said substrate such that said electronic device operates with said substrate mounted to the receptor site in any one of a plurality of orientations relative to said receptor site..." These elements were not disclosed or suggested in Cheung.

As taught by Applicant in the Specification, (see for example, page 18-19), the use of fluidic self-assembly will typically cause symmetrically shaped integrated circuits (e.g., a square) to be deposited into the openings in many orientations. That is, the orientation of the IC cannot be controlled in the process. Thus, at least in many instances, the electrical interface pads such as the pads shown by the squares within the ICs 152A and 153A must be functionally symmetric from an external interface point of view. That is, for example, the pad

in the upper left corner of each IC after it is deposited into the opening should be an output pad such as the output pad 186B. It can be seen from Figure 3D that the rotational orientation of IC 152A has four possible states such that, in one state, pad Out1A is in the upper left corner of the IC as it sits in an opening in a receptor substrate while in a second rotational state, pad Out1D is in the upper left corner, and in a third rotational state, pad Out1C is in the upper left corner, etc. Thus, it can be seen that the rotational orientation may be one of four orientations relative to a receptor substrate in the case of the display device shown in Figure 3D. This will require that the integrated circuit be externally functionally symmetric even though internally its circuitry may be asymmetric.

Cheung did not disclose, suggest, or motivate such a requirement. In Cheung, the IC chip has pads that are grouped into a number of groups, and also has circuitry to allow functional modules in the chip to share, among each other, use of two or more groups of the pads for transferring signals to/from circuitry external to the chip. There is no teaching in Cheung that dealt with functionally symmetric pad or the rotational orientation of the chip such that the orientation of the IC relative to the openings can have any of the possible orientations. Therefore, Cheung cannot make obvious claim 42-44.

With regard to claims 45-51, Applicant submits that Cheung did not disclose, suggest, or motivate the elements of claims 45-51. Claims 45-51 require a receptor substrate having a conductive layer, and an integrated circuit (IC) attached to the receptor substrate. The claims further require that the IC has a plurality of interface pads including at least one interface pad which is coupled to the conductive layer to receive a signal from the conductive layer. The claims further require that the IC also comprises a first logic circuit coupled to a first set of interface pads and providing a first function. The claims further requires that the IC also comprises a second logic circuit coupled to a second set of interface pads and providing a second function. And, the claims require a selector logic circuit coupled to the first logic

circuit and the second logic circuit and coupled to receive the signal from the conductive layer which causes the selector logic to select between the first function and the second function.

Cheung did not disclose, suggest, or motivate such a selector logic that is coupled to receive signal from the conductive layer through the at least one interface pad to cause the selector logic to select between the first function and the second function. Thus, Chung cannot make obvious claims 45-51.

With regard to claims 52-55, Applicant submits that Cheung did not disclose, suggest, or motivate the elements of claims 52-55. Claims 52-55 require an IC attached to said opening in said receptor substrate, said IC having electrical interface pads on a substantially planar surface which is substantially co-planar with said substantially planar region. These elements were not disclosed, suggested, or motivated anywhere in Cheung. Thus, Cheung cannot make obvious claims 52-55. Additionally, with regard to claim 53, Cheung did not disclose, suggest, or motivate the element “wherein said IC is attached to said receptor substrate through a fluidic self assembly process, and wherein said first set and said second set of electrical interface pads overlap at least partially.

With regard to claims 56-59, Applicant also submits that Cheung did not disclose, suggest, or motivate the elements of claims 56-59. Claims 56-59 require an instruction data logic coupled to an electrical interface pad and a clocked logic circuit coupled to the same electrical interface pad. Additionally, the instruction data logic receives instruction commands, from this electrical interface pad, to cause the IC to perform a particular function and the clocked logic circuit receives a clock signal from this electrical interface pad which also provides commands to the IC. As can be seen, claims 56-59 pertain to an interface pad that receives both instructions for the instruction data logic and a clock signal for the clocked logic circuit. Cheung only taught that a control signal can be a clock signal but made no mention or suggestion of one interface pad that couples to both the instruction data logic and the clocked logic circuit as in claims 56-59 and receives both instructions for the instruction data logic and clock signals for the clocked logic circuit.

Applicant further submits that Cheung and Smith in combination or alone do not make obvious claims 42-59. Smith pertained to a method of assembling microstructures onto a substrate using fluidic self assembly or fluid transfer. Cheung pertained to IC having pads that are grouped into a number of groups and functional modules that share among the groups of pads. None of the reference taught, suggest, or motivated its elements of claims 42-59 such as a plurality of functionally symmetric interface pads arranged so that the electronic devices operates with any plurality of orientations (claims 42-44), a selector logic circuit coupled to receive signal from the conductive layer so as to select between a first function and a second function for the IC (claims 45-51), an IC with interface pads on a substantially planar surface as in claims 52-54, and one electrical interface pad coupling to an instruction data logic and a clocked logic circuit as in claims 56-59.

If the Examiner finds any remaining impediment to the prompt allowance of these claims that could be clarified with a telephone conference. Applicant respectfully requests the Examiner to contact Mimi Diemmy Dao at (408) 720-8300.


Deposit Account Authorization

Authorization is hereby given to charge our Deposit Account No. 02-2666 for any charges that may be due.

Respectfully submitted,

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